Can WE Compare to an Obsidian Edge?

Posted by FredHermann - 11 Oct 2012 15:11

I frequent a swords forum, which has some significant discussions about blade sharpness and maintenance. One of the guys posted that obsidian makes the sharpest edge on earth....and I thought, really?

So I got the references he was using. But the quote that got me was "To date obsidian makes the sharpest edge known of 3 nano meters."

Pasted below:

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The picture comesfrom this blog,

tywkiwdbi.blogspot.com/2012/07/shaving-with-obsidian-razor.html

How ever there isn't a lot of info from that blog. though they do have a nice video of shaving with an obsidian blade.

You can find more about obsidian blades at wiki

en.wikipedia.org/wiki/Obsidian

en.wikipedia.org/wiki/Glass_knife

Here is another great magnified image from c2cwtnd.net/states/oregon/newberry/obsidian.html but again not a lot of info there.

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So is this still true? Clay looks to have grossly exceeded that with some of the pics he's got.

Thoughts?

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Re: Can WE Compare to an Obsidian Edge?
Posted by KyleMazur - 11 Oct 2012 17:04

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i might be wrong but i seem to remember reading that the makeup of steel isn't capable of getting as sharp as obsidian. it has something to do withe the chemical makeup of obsidian vs. steel and because the way the molecules are arranged obsidian is capable of being sharper than steel. i think that's what i read somewhere. regardless i'm interested to see what others say

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Re: Can WE Compare to an Obsidian Edge?
Posted by AnthonyYan - 11 Oct 2012 17:37

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This is a very interesting question. Currently, it seems unlikely that any conventional knife metal could be sharpened as finely as obsidian. This is mainly due to the fact that metal is poly-crystaline. That is, it is comprised of many tiny crystals all packed together. It is difficult to get the knife edge to be much sharper than a single crystal. For example, take a knife made out of wood, and try to make it sharper than the wood-grain. You will find that as the edge gets close to the size of a wood-fibre, that the edge simply tears out, rolls over, or fails in some other way. Something similar to this happens with the tiny crystals in metal. These tiny crystals are sometimes called the "grain size" of the metal. I'm not saying it is impossible, but as you try to get sharper than the grain size, it becomes more and more difficult.

In material science, a glass is a material with no crystal structure at all. In other words, the grain size is zero. As a result, when a glassy material (such as obsidian) fractures, there is no grain size to limit how sharp the edges can be. So they end up very sharp indeed!

You might like one of my earlier posts in a different thread. I mention a list of sharpness and length-scales for different things, starting with hair and going all the way down to obsidian blades and the size of carbon atoms.

www.wickededgeusa.com/index.php?option=c...2&Itemid=63#4078

I think the sharpness of things is a very interesting question, so I'm always glad to see some discussion about it. ☺

Sincerely,

--Lagrangian

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